

reference in their entireties. The presence of the desiccant in the material provides consistent drying capabilities throughout the container so that each of a plurality of tests contained in the container remain equivalently reliable over time. In some embodiments, the desiccant is not attached or associated with the delivery system (*e.g.*,  
5 provided in an unattached pouch).

The present invention is not limited by the nature of the desiccant, or by the use of a desiccant. In some embodiments, the desiccant comprises one or more chemical compounds that form crystals that contain water (*e.g.*, anhydrous salts), compounds that undergo a chemical reaction with water or moisture, and materials  
10 capable of moisture absorption through physical absorption (*e.g.*, silica gels, molecular sieves, and naturally occurring clay compounds such as montmorillinite clay).

A number of container materials may be used in the generation of entrained desiccants. For example, matrix based polymers of the present invention can be basically any functionalized thermoplastic including anhydride or amine or acid or  
15 cyanate or isocyanate or hydroxy functionalized polymer. Examples of suitable matrix based polymers, as described in U.S. Pat. No. 6,080,350, include polypropylene maleic anhydride, polyethylene maleic anhydride, polystyrene maleic anhydride, polyethylene acrylic acid, polyethylene-urethane, polyethylene-EVOH and polyethylene-nylon. Other suitable thermoplastic materials include grafted polyolefins, polycarbonates,  
20 polyamides, ethylene-vinyl acetate partially hydrolyzed polymers, ethylene-methacrylate partially hydrolyzed polymer, grafted polyvinyl chloride, grafted polystyrene, polyester, polyester amide, polyacrylic partially hydrolyzed ester, acrylic, polyurethane and polyacetal or mixtures thereof. In some embodiments of the present invention, the desiccant containing material comprises channels to allow moisture to be  
25 eliminated by the entrained material. The channeling agent used in the present invention, as described in U.S. Pat. No. 6,080,350, can be generally any hydrophilic material. In one embodiment, the hydrophilic material is a polar compound having at least two hydroxy groups. Suitable channeling agents of the present invention include polyglycols such as polyethylene glycol and polypropylene glycol and mixtures  
30 thereof. Other suitable materials include EVOH, glycerin, pentaerythritol, PVOH,

polyvinylpyrrolidone, vinylpyrrolidone or N-methyl pyrrolidone, with polysaccharide based compounds such as glucose, fructose, and their alcohols, and mannitol being suitable for the purposes of the present invention since they are hydrophilic compounds having numerous hydroxy groups.

5           The desiccant-containing delivery systems of the present invention are used to increase the shelf-life of the assay tests. Thus, when used in conjunction with the multiple-test-containing delivery systems of the present invention, the test can be accessed at different time periods and still maintain functionality (*i.e.*, the ability to accurately detect the presence of alcohol in a sample). In some embodiments, tests  
10       may be stored and accessed for one month to two years or more and still maintain functionality (*e.g.*, one month, two months, . . . one year, . . . two years, . . .).

          In some embodiments, no desiccant material is used at all. The present invention provides delivery systems and assay tests that allow the assay tests to remain functional over extended periods of time without desiccation. Test systems without  
15       desiccant are manufactured less expensively. Thus, the desiccant-free test systems of the present invention provide an advantage over available desiccant-containing systems.

          In preferred embodiments, the delivery system acts as a storage container and stores multiple assay tests so that one or more assay tests can be accessed on a single occasion or on two or more distinct occasions. In some embodiments, the delivery  
20       system comprises a flat credit-card shaped structure (*e.g.*, a folded structure as described above). In some embodiments of the present invention, the delivery system comprises a thin box, an oval, round, or other shaped cylinder, or other desired shapes, that includes one or more compartments for multiple assay test storage. In preferred  
25       embodiments, the storage container comprises a material such as hard plastic that protects the assay tests and increases their durability, while in other embodiments, the delivery system comprises a paper or cardboard-like material (*e.g.*, laminated paper). In particularly preferred embodiments, the delivery system is constructed so that it can be easily opened to access assay tests. In other embodiments the delivery system is  
30       made of a hard plastic polymer with an entrained desiccant so that moisture is channeled away from the contents contained therein, maintaining a low humidity and

preserving the viability of the reaction means of the assay tests. In other embodiments, removable protective encasements cover one or more compartments.

Storing multiple assay tests so that they can be accessed on a single occasion or two or more distinct occasions has several benefits. Multiple assay tests allow individuals to use more than one assay test on a given occasion, for example, to determine if their analyte concentration has increased or dropped over time. Additionally, because individuals may use assay tests on separate occasions, the delivery system stores a sufficient quantity of tests to last an individual a period of days, weeks, or months; thereby diminishing the need to continually replenish assay test supply. For example, where the tests are provided to consumers by a party other than the consumer, the distribution of the system by the secondary party is more efficient (*e.g.*, requires less resources) if multiple tests are distributed at one time rather than providing tests on separate occasions. In addition, in some embodiments, it is desirable for the delivery system to be durable so that the assay tests are not damaged during distribution from a secondary party to a consumer (*e.g.*, distribution by mail).

In some embodiments of the present invention, the delivery system is designed to allow easy access to the assay tests. For example, tests may be accessed by simply snapping open an air tight cap that covers one or more chambers containing the tests. In preferred embodiments the delivery system comprises a hard plastic polymer storage container with an entrained desiccant, thereby, protecting the assay tests inside from environmental moisture. In other embodiments, tests may be accessed by simply lifting a flap that covers one or more chambers containing the tests. Alternately, the tests may be directly accessed through an opening at one portion of a chamber. In yet other embodiments, the delivery system comprises a folded structure (*e.g.*, two flaps connected by a hinge or three flaps connected by two hinges) whereby unfolding of the structure reveals one or more of the assay tests. In some of these embodiments, exposure of the assay tests to the environment is increased (a negative consequence) in trade for easier access (*i.e.*, the assay tests are not completely sealed from exposure to